



ATTORNEY DOCKET NO.: 0492611-0512 (MIT9984)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Bear, et al. Examiner:  
Serial No.: 10/655,872 Art Unit:  
Filing Date: September 5, 2003  
Title: Lentiviral Vectors, Related Reagents, and Methods of Use Thereof

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**TRANSMITTAL LETTER**

Enclosed please find the following documents regarding the above-referenced matter:

1. Information Disclosure Statement (6pages)
2. Form PTO-1449 (3 pages)
3. Cited Art (33)
4. Return Postcard.

Please charge any additional fees that may be associated with this matter to our Deposit Account No. 03-1721.

Respectfully submitted,

*Monica R. Gerber*

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Dated: Jan. 9, 2003  
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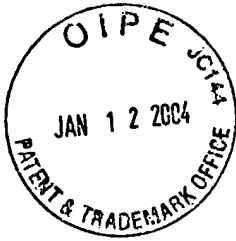
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Date

Signature

Sandra Saccoccia

Typed or Printed Name of person signing certificate



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**STATEMENT**

Pursuant to the duty of disclosure under 37 C.F.R. §§1.56, 1.97 and 1.98, Applicant requests consideration of this Information Disclosure Statement.

**Type of Statement**

The present Information Disclosure Statement is:

- ☒ An *original* Information Disclosure Statement; or  
☐ A *supplemental* Information Disclosure Statement.

<b>Certificate of Mailing</b>	
I certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.	
Date <u>1-9-04</u>	Signature <u>Sandra Saccoccia</u>
_____ Typed or Printed Name of person signing certificate	

Compliance with 37 CFR § 1.97

The present Information Disclosure Statement is being filed:

- ☒ Pursuant to 37 CFR § 1.97(b); no fee or certification is required:
  - ☐ Within three months of the filing date of a national application other than a continued prosecution application under § 1.53(d);
  - ☐ Within three months of the date of entry of the national stage as set forth in § 1.491 in an international application;
  - ☒ Before the mailing of a first Office action on the merits; or
  - ☐ Before the mailing of a first Office action after the filing of a request for continued examination under § 1.114.
- ☐ Pursuant to 37 CFR § 1.97(c) after the dates listed above but before the mailing date of any of a final action under § 1.113, a notice of allowance under § 1.311, or an action that otherwise closes prosecution in the application; Applicant hereby *either*:
  - ☐ Certifies that *either*:
    - ☐ each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement; or
    - ☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making

reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of the information disclosure statement.; or

☐ Includes herewith the fee set forth in § 1.17(p).

☐ Pursuant to 37 CFR § 1.97(d), after the mailing date of any final action under § 1.113, a notice of allowance under § 1.311, or an action that otherwise closes prosecution in the application; Applicant hereby *both*:

☐ Certifies that *either*:

☐ each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement; or

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of the information disclosure statement.; and

☐ Includes herewith the fee set forth in § 1.17(p).

Content of the Information Disclosure Statement

Applicant hereby makes of record in the above-identified application the reference(s) listed on the attached form PTO-1449 (modified). The order of presentation of the references should not be construed as an indication of the importance of the references.

Applicant includes copies of references as indicated below:

- ☒ A copy of each cited reference not indicated with an asterisk is included;
- ☐ Copies of references indicated with an asterisk on the attached form PTO-1449 are not included pursuant to 37 CFR § 1.98(d) because they were previously provided to the United States Patent Office in an Information Disclosure Statement that complies with 37 CFR § 1.98(a)-(c) and was submitted in the following patent application that is relied upon in the present case for an earlier effective filing date under 35 USC § 120:

Serial Number	Filing Date	Status

- ☐ Copies of English translations of one or more non-English references are included.

Applicant hereby makes the following additional information of record in the above-identified application:

Applicant certifies that the Information Disclosure Statement *either*:

- ☐ Does not contain non-English language citations;
- ☐ Does contain non-English language citations, of which the following is a concise explanation:
- ☐ Includes one or more translations of a non-English citation.

## Remarks

The submission of this Information Disclosure Statement should not be construed as a representation that a search has been made.

The submission of this Information Disclosure Statement shall not be construed to be an admission that the information cited in the statement is, or is considered to be, material to patentability as defined in § 1.56(b) .

The submission of this Information Disclosure Statement shall not be construed as a representation that the information cited in the Statement is, or is considered to be, in fact, prior art as defined by 35 U.S.C. §102.

It is respectfully requested that:

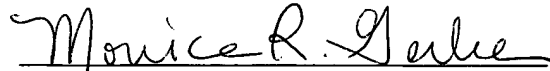
1. The Examiner consider completely the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims;
2. The enclosed form PTO-1449 be signed by the Examiner to evidence that the cited patent(s) and publication(s) has (have) been fully considered by the Patent and Trademark Office during the examination of this application; and
3. The citations for the patent(s) and publication(s) be printed on any patent which issues from this application.

Notwithstanding any statements by Applicants, the Examiner is urged to form his or her own conclusions regarding the relevance of the cited reference(s).

Respectfully submitted,

Dated:

1/9/04



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3641775

<b>FORM PTO-1449</b> (REV. 8-83)		U.S. Department of Commerce Patent and Trademark Office		Atty. Docket: 0492611-0512	In Re Application No.: 10/655,872
<b>INFORMATION DISCLOSURE STATEMENT</b> (Use several sheets if necessary)		Applicant: Bear, et al.		Filing Date: September 5, 2003	Group:

<b>U.S. PATENT DOCUMENTS</b>					
Examiner's Initials	U.S. Patent No.	Applicant	Issue Date	Class	Subclass

<b>U.S. PATENT APPLICATIONS</b>					
Examiner's Initials:	Serial Number:	Applicant:	Publication Date:	Group:	Art Unit:

<b>FOREIGN PATENT DOCUMENTS</b>					
Examiner's Initials	Document No.	Country	Date	Translation	
				Yes	No

<b>OTHER DOCUMENTS</b>	
Examiner's Initials	Citation (Including Author, Title, Date, Pertinent Pages, Etc.)
	Bernstein, et al., "Role for a Bidentate Ribonuclease in the Initiation Step of RNA Interference", <i>Nature</i> , <b>409</b> : 363-366, 2001.
	Brummelkamp, et al., "A System for Stable Expression of Short Interfering RNAs in Mammalian Cells", <i>Science</i> , <b>21</b> : 21, 2002.
	Brummelkamp, et al., "Stable Suppression of Tumorigenicity by Virus-Mediated RNA Interference", <i>Cancer Cell</i> , 2002.
	Chen, et al., "RAG-2 Deficient Blastocyst Complementation: an Assay of Gene Function in Lymphocyte Development", <i>Proc. Natl. Acad. Sci. USA</i> , <b>90</b> : 4528-4532, 1993.
	Devroe, et al., "Retrovirus-Delivered siRNA", <i>BMC Biotechnology</i> , <b>2</b> : 2002.
	Elbashir, et al., "RNA Interference is Mediated by 21- and 22-Nucleotide RNAs", <i>Genes Dev</i> , <b>15</b> : 188-200, 2001.
	Elbashir, et al., "Duplexes of 21-Nucleotide RNAs Mediate RNA Interference in Cultured Mammalian Cells", <i>Nature</i> , <b>411</b> : 494-498, 2001.
	Eszterhas, et al., "Transcriptional Interference by Independently Regulated Genes Occurs in any Relative Arrangement of the Genes and is Influenced by Chromosomal Integration Position", <i>Mol. Cell. Biol.</i> <b>22</b> : 469-479, 2002.
	Fire, et al., Potent and Specific Genetic Interference by Double-Stranded RNA in <i>Caenorhabditis Elegans</i> ", <i>Nature</i> , <b>391</b> : 806-811, 1998.
	Fung, et al., "CD8 is Needed for Development of Cytotoxic T Cells but Not Helper T Cells", <i>Cell</i> , <b>65</b> : 442-449, 1991.



FORM PTO-1449

U.S. Department of  
Commerce  
Patent and Trademark OfficeAtty. Docket:  
0492611-0512In Re Application No.:  
10/655,872

(REV. 8-83)

Applicant: Bear, et al.

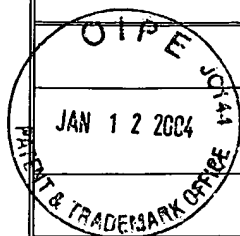
**INFORMATION DISCLOSURE STATEMENT**

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Filing Date:  
September 5, 2003

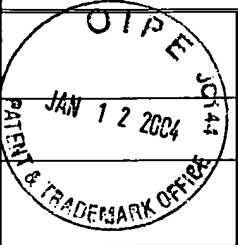
Group:

Cell, 65: 443-449, 1991.

Hacein-Bey-Abina, et al., "Sustained Correction of X-Linked Severe Combined Immunodeficiency by Ex Vivo Gene Therapy", *N. Engl. J. Med.* 346: 1185-1193, 2002.Hannon, et al., "RNA Interference", *Nature*, 418: 244-251, 2002.Hogquist, K, "Signal Strength in Thymic Selection and Lineage Commitment", *Curr. Opin. Immunol.* 13: 225-231, 2001.Jaenisch, et al., "Infection of Preimplantation Mouse Embryos and of Newborn Mice with Leukemia Virus: Tissue Distribution of Viral DNA and RNA and Leukemogenesis in the Adult Animal", *Proc. Natl. Acad. Sci USA*, 72: 4008-4012, 1975.Kennerdell, et al., "Use of dsRNA-Mediated Genetic Interference to Demonstrate that Frizzled and Frizzled 2 Act in the Wingless Pathway", *Cell*, 95: 1017-1026, 1998.Martinez, et al., "Single-Stranded Antisense siRNAs Guide Target RNA Cleavage in RNAi", *Cell*, 110: 563-574, 2002.McManus, et al., "Gene Silencing in Mammals by siRNAs", *Nature Genetics Reviews in Press.* (2002)McManus, et al., "Small Interfering RNA-Mediated Gene Silencing T Lymphocytes", *The Journal of Immunology*, 169: 5754-5760, 2002.McManus, et al., "A Gene Silencing Using Micro-RNA Designed Hairpins", *RNA*, 8: 842-850, 2002.Mitchell, et al., "Immunological Adjuvants Promote Activated T Cell Survival via Induction of Bcl-3", *Nat. Immunol.* 2: 397-402, 2001.Moss, et al., "The Cold Shock Domain Protein LIN-28 Controls Developmental Timing in *C. Elegans* and is Regulated by the Lin-4 RNA", *Cell*, 88: 637-646, 1997.Paddison, et al., "Short Hairpin RNAs (shRNAs) Induce Sequence-Specific Silencing in Mammalian Cells", *Genes Dev.* 16: 948-958, 2002.Paddison, et al., "RNA Interference: The New Somatic Cell Genetics?" *Cancer Cell*, 2: 17-23, 2002.Paul, et al., "Effective Expression of Small Interfering RNA in Human Cells", *Nat. Biotechnol.* 20: 505-508, 2002.Pfeifer, et al., Transgenesis by Lentiviral Vectors: Lack of Gene Silencing in Mammalian Embryonic Stem Cells and Preimplantation Embryos", *Proc Natl. Acad. Sci, USA*, 99: 2140-2145, 2002.Reinhart, et al., "The 21-Nucleotide Let-7 RNA Regulates Developmental Timing in *Caenorhabditis Elegans*", *Nature*, 403: 901-906, 2000.Schmidt, et al., "The Cytomegalovirus Enhancer: A Pan-Active Control Element in Transgenic Mice", *Mol. Cell. Biol.* 10: 4406-4411, 1990.Stark, et al., "How Cells Respond to Interferons", *Annu Rev Biochem.* 67: 227-264, 1998.

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		Applicant: Bear, et al.	
		Filing Date: September 5, 2003	Group:

	Sui, et al., "A DNA Vector-Based RNAi Technology to Suppress Gene Expression in Mammalian Cells" <i>Proc. Natl. Acad. Sci. USA</i> , <b>99</b> : 5515-5520, 2002.
	Tuschl, T., "Expanding Small RNA Interference", <i>Nat. Biotechnol.</i> <b>20</b> : 446-448, 2002.
	Wightman, et al., "Posttranscriptional Regulation of the Heterochronic Gene Lin-14 by Lin-4 Mediates Temporal Pattern Formation in <i>C. Elegans</i> ", <i>Cell</i> , <b>75</b> : 855-862, 1993.
	Willerford, et al., "Interleukin-2 Receptor Alpha Chain Regulates the Size and Content of the Peripheral Lymphoid Compartment", <i>Immunity</i> , <b>3</b> : 521-530, 1995.
	Zufferey, et al., "Multiply Attenuated Lentiviral Vector Achieves Efficient Gene Delivery in Vivo", <i>Nat. Biotechnol.</i> <b>15</b> : 871-875, 1997.

<b>EXAMINER</b>	<b>DATE CONSIDERED</b>
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	